



STATEMENT OF BASIS
WASTE ETCHANT UNDERGROUND STORAGE TANK
SOLID WASTE MANAGEMENT UNIT NO. 28
45TH SPACE WING
CAPE CANAVERAL AIR FORCE STATION
BREVARD COUNTY, FLORIDA



PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed in order to inform the public and give the public an opportunity to comment on a proposed remedy to clean up contamination at the Waste Etchant Underground Storage Tank (DP011). A 45th Space Wing (45th SW) installation restoration partnering (IRP) team consisting of United States Air Force (USAF), United States Environmental Protection Agency (USEPA), Florida Department of Environmental Protection (FDEP), the U. S. Army Corps of Engineers, and various environmental consultants have determined that the proposed remedy is cost effective and protective of human health and the environment. However, prior to implementation of the proposed

Brief Site Description

The Waste Etchant UST was located on the west side of Facility 1708 in the CCAFS Industrial Area (See Figure 1). The UST was used to store waste etchant acids from 1961 to 1973.

may comment as described in the "How Do You Participate" section of the SB. Upon closure of the public comment period, the 45th SW IRP team will evaluate all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy prior to implementation.

WHY IS CLEANUP NEEDED?

The results of the Remedial Investigation (RI) indicated that total chromium (listed in Table 1)

is present in site soil at levels that could be potentially harmful to human health. Additionally, several volatile organic compounds (VOCs) are present in the groundwater at levels that could be potentially harmful to human health. Additional investigation and remediation of the groundwater was deferred to another site (Hangar K, SWMU No. 22), which was been identified as the primary source of the groundwater contamination in the industrial area.

HOW DO YOU PARTICIPATE?

The 45th SW IRP team solicits public review and comment on this SB prior to implementation of the proposed remedy as a final remedy.

The final remedy for DP011 will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) Permit for Cape Canaveral Air Force Station (CCAFS).

The public comment period for this SB and the proposed remedy will

The Clean-up Remedy

The proposed clean-up remedy for DP011 includes (but is not limited to) the following components:

- Implementation of land use controls designed to prevent exposure to site contaminants. These include:
 - Prohibition of residential development
 - Posting warning signs on-site
 - Prohibition of groundwater as a drinking water source, pending additional investigation under SWMU No. 22

A complete list of land use controls and other protective measures are found in the DP011 Land Use Control Implementation Plan (LUCIP).

begin on the date that a notice of the SB's availability is published in a major local newspaper of general circulation. The public comment period will end 45 days thereafter. If requested during the comment period, the 45th SW IRP team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

Mr. Jorge Caspary
FDEP-Bureau of Waste Cleanup
2600 Blair Stone Road, MS-4535
Tallahassee, FL 32399-2400
E-mail: Jorge.Caspary@dep.state.fl.us
Telephone: (850) 921-9986

The HSWA Permit, the SB, and the associated Administrative Record, including the RI Report, will be available to the public for viewing and copying at:

Environmental Management, CEV/ESC
Facility 1638, Samuel Phillips Parkway
Cape Canaveral Air Force Station, FL
For public access call (321) 853-0965

This information can also be found on-line at
http://www.mission-support.org/45SW_IRP_EA

The HSWA Permit, the SB, and DP011 Report summaries will be available for viewing and copying at:

Central Brevard Library
308 Forrest Avenue
Cocoa, FL, 32922

To request further information, you may contact one of the following people:

Ms. Teresa Green
Environmental Restoration Element Chief
45 CES/CEVR
1224 Jupiter Street
Patrick Air Force Base, FL 32925-3343

E-mail: teresa.green@patrick.af.mil
Telephone: (321) 853-0965

Mr. Jorge Caspary
See previous contact information

Mr. Timothy R. Woolheater, P. E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960
E-mail: woolheater.tim@epamail.epa.gov
Telephone: (404) 562-8510

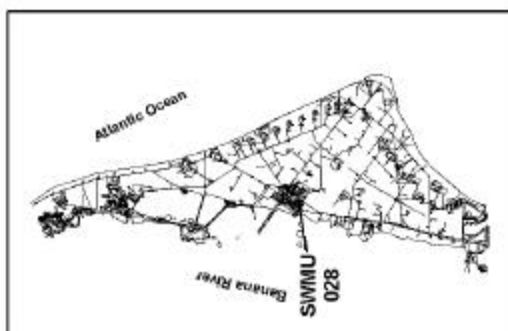
FACILITY DESCRIPTION

USAF established the 45th SW as the primary organization for the Department of Defense aerospace force programs. Historically, the National Aeronautics and Space Administration (NASA) also performed space launch related operations on the 45th SW property. These operations have involved the use of toxic and hazardous materials. Under RCRA and the HSWA Permit (CCAFS Permit No. FL2800016121) issued by the USEPA, the 45th SW was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 28, Waste Etchant UST (DP011).

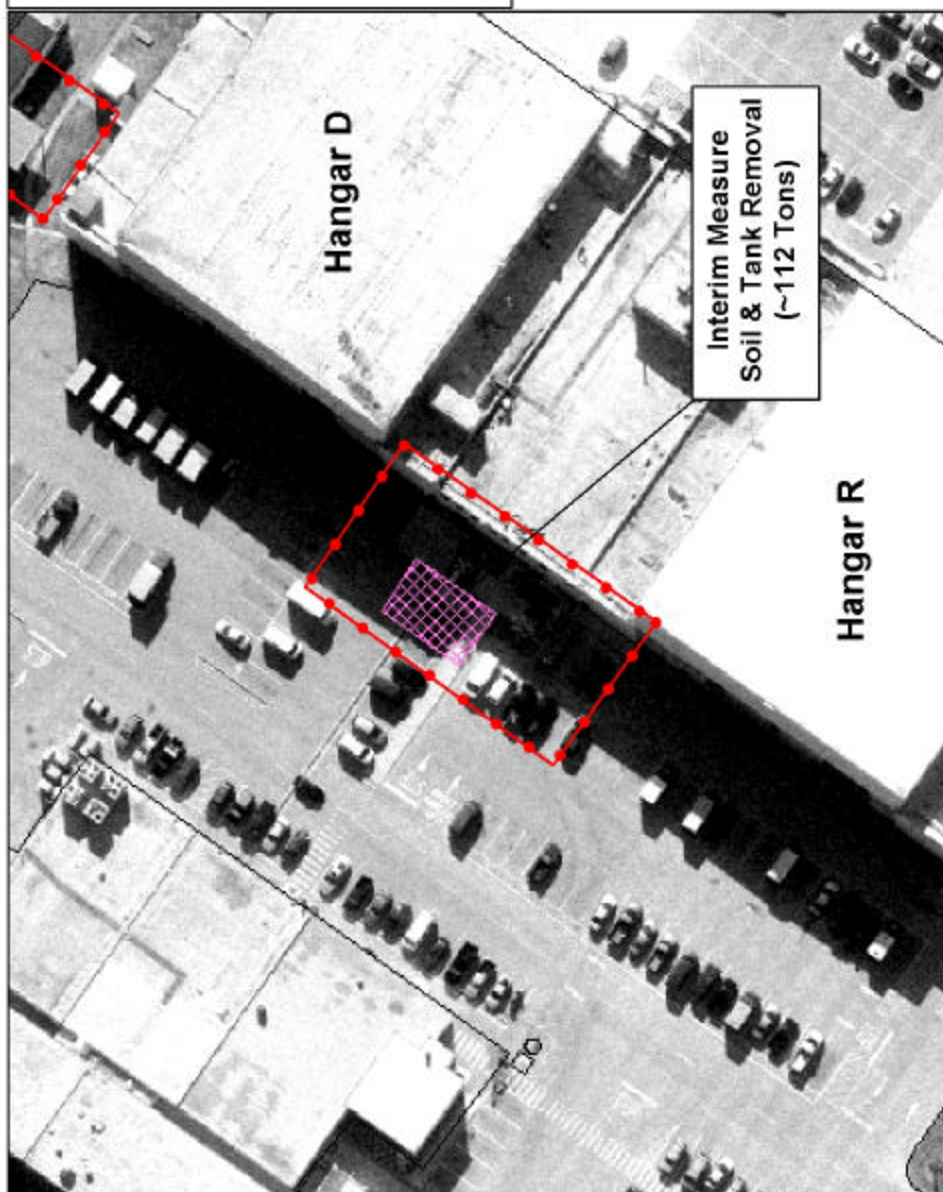
SITE DESCRIPTION AND HISTORY

The Waste Etchant UST (also known as DP011) was located on the west side of Building 1708 (Hangars R and D) in the CCAFS Industrial Area (See Figure 1). The Site contained a 1,500 gallon underground storage tank (UST), the bottom of which was located approximately 12 feet below land surface. The site is overlain with asphalt, and there is no vegetation currently found on site.

The UST was used to store waste etchant acids (chromic and sulfuric) from the Circuit Board Etchant Facility (Building 1708) from 1961 to 1973. The use of the tank was terminated in



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Legend



Waste Etchant UST SWMU 028 Cape Canaveral Air Force Station

In accordance with RCRA Section 7004(b), this Statement of Basis summarizes the proposed remedy for CCAFS Waste Etchant Underground Storage Tank. For detailed information, consult the Waste Etchant Underground Storage Tank RI Report which is available for review at the 45th SW Environmental Management Office (See "How Do You Participate") or on-line at http://www.mission-support.org/45SW_IRP_EA.

1973 when a leak was discovered. Subsequently, the tank was out of service and filled with crushed limestone. The tank was removed in the 1993-1994 timeframe.

The USAF has conducted the following investigations:

- 1984: A Phase 1 Records Search including records review, site reconnaissance, and interviews with knowledgeable aerospace personnel identified a waste etchant UST which warranted further investigation. A Phase 2 Confirmation/Quantification Investigation was recommended to collect and analyze the site's environmental media (soil and groundwater) to evaluate the presence or absence of contamination.
- 1988: The Phase 2 Confirmation Quantification Report concluded that the presence of constituents in soil and groundwater might pose a risk to human health and the environment. A Remedial Investigation (RI) was recommended in order to assess the nature and extent of the contamination present at the site and perform risk assessments to determine if the contamination is detrimental to human or ecological health.
- 1994: An Interim Measure was completed. This consisted of excavation and removal of the 1,500 gallon UST and 80 cubic yards (112 tons) of contaminated soil.
- 1988-1997: An RI was performed, detailing sampling and analysis of the site's soil and ground water. These results were used to determine human health and ecological risks. The Human Health Risk Assessment (HHRA) indicated that potential risk exists from the site's soil and ground water. During the RI, the 45th SW IRP team decided to assess and document DP011 groundwater concerns under another SWMU, Hangar K Area (SWMU No. 22). The Ecological Risk Assessment (ERA) indicated that no unacceptable ecological risk is present at the site.

- 1993-1997. A Feasibility Study was performed in conjunction with the RI, in order to select the appropriate remedy for the site.

SUMMARY OF SITE RISK

As part of the RI activities, an HHRA and an ERA were conducted to estimate the health and environmental risks associated with the site-specific contamination. The risk assessments were performed in accordance with risk management decision processes established by the USEPA, FDEP, and the USAF at the time the RI was initiated.

Chemicals of Concern (COCs) identified for human health during the RI were:

- Groundwater: aluminum, arsenic, tetrachloroethylene, trichloroethylene
- Soil: beryllium, total chromium

Surface water and sediment features were not present on the site, and were therefore not evaluated as a source of potential human health risk. Several groundwater contaminants initially appeared to present a low-level risk to hypothetical future residents. When risk management considerations (e.g., frequency of detection, or data points could not be reproduced with resampling) were taken into account, the RI determined that arsenic and aluminum did not pose an unacceptable potential risk to hypothetical residents through ground water exposure. During later investigations at a nearby Site, it appeared that a groundwater plume of VOCs emanating from that Site may be impacting the groundwater that underlies DP011. The 45th SW IRP Team determined that additional groundwater investigation and remedial action would be addressed under SWMU No. 22 (Hangar K) for the industrial area plume as a whole. It will be necessary to restrict contact with and use of groundwater at DP011 until a remedy for the plume as a whole is determined by the Hangar K investigation.

Soil was therefore the only medium that demonstrated a potential unacceptable human health risk. The beryllium and total chromium concentrations in soil at one location exceeded residential criteria.

The ERA was conducted to evaluate the possibility that land organisms (eco-receptors) may be at risk from site-related contaminants. The ERA was based on laboratory analyses of groundwater and soil samples.

The ERA concluded that potential risk from the exposure to and/or ingestion of groundwater or soil by eco-receptors is marginal. Several factors mitigate the potential concern. These could include routine facility operation and maintenance activities, less than optimal habitat found within facility boundaries, and the extent of the eco-receptor's normal foraging area.

WHAT ARE THE CLEANUP OBJECTIVES AND LEVELS?

The remedial action objectives (RAOs) are to:

- 1) Protect humans from exposure to shallow groundwater and prevent consumption of groundwater from the shallow aquifer (until a groundwater remedy is developed for the Industrial Area as a whole, under SWMU No. 22); and
- 2) Prevent unacceptable human contact with site soils.

Table 1 lists the COCs present at the DP011 site. The first column lists the chemical name, the second column lists the maximum concentration detected in the impacted media at DP011 during the RI, and the last column presents the clean-up level to be achieved at the site. Please note that groundwater will be investigated and remediated under SWMU No. 22, where the contamination is believed to have originated. Therefore, groundwater contaminants are not included in Table 1.

TABLE 1—CLEANUP GOALS

Site-Related Chemicals of Concern (COCs)	Maximum Detected Concentration (mg/kg)	Site-Specific Clean-up Level ¹ (mg/kg)
SOIL		
Total Chromium	731	290
Beryllium	0.34	0.15

¹ Clean-up level represents the most stringent value among USEPA and FDEP criteria at the time of the final investigation.

CLEANUP ALTERNATIVES FOR DP011

Clean-up alternatives are different combinations of plans to restrict site use and to contain, remove, and/or treat contamination in order to protect public health and the environment. Only two alternatives were considered because of low levels of contamination present at the DP011. The clean-up alternatives considered for the DP011 are summarized below.

No Action: Evaluation of the No-Action alternative is used as a basis for comparison with other alternatives. Under this alternative, no remedial action would be taken to reduce human health risks or restrict site use. It was determined this alternative would not attain the RAO.

Land Use Controls: Under this alternative, the 45th SW would implement site-specific land use controls to protect against exposure to contaminated soils and shallow groundwater and to prevent consumption of shallow groundwater. Additional investigation and remediation, and monitoring of groundwater will be conducted under SWMU No. 22, Hangar K Area; however, land use controls would be implemented to limit the use of shallow groundwater as a drinking water source. In the long term, this remedy alternative will meet the RAOs and will also allow re-evaluation to determine if the remedy is working and provide an opportunity for change if necessary.

The 45th SW, USEPA, and FDEP have entered into a Memorandum of Agreement (MOA), which outlines how land use controls will be managed at the 45th SW. The MOA requires periodic inspections, condition certification, construction project coordination, and agency notification. Site specific details can be found in the DP011 Land Use Control Implementation Plan (LUCIP).

EVALUATION OF REMEDY ALTERNATIVES

Each cleanup alternative was evaluated to determine how each potential remedy would comply with the four general standards for corrective measures. The four general standards for corrective measures are:

- Overall protection of human health and the environment;
- Attain media cleanup standards;
- Control the sources of releases; and
- Comply with standards for management of wastes

The second alternative (Land Use Controls) meets each of the above criteria, while the no action alternative remedy would not meet them.

LAND USE CONTROLS AGREEMENT

By separate MOA dated 23 December 1999, with USEPA and FDEP, CCAFS, on behalf of the Department of the Air Force, agreed to implement base-wide, certain periodic site inspection, condition certification, and agency notification procedures designed to ensure the maintenance by installation personnel of any site-specific land use controls deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the USAF's substantial good-faith compliance with the procedures called for therein, reasonable assurances would be provided to the USEPA and FDEP as to the permanency of those remedies which included

the use specific land use controls.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by the USAF, USEPA, and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent on CCAFS's substantial good-faith compliance with the specific land use control maintenance commitments reflected therein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

WHAT IMPACTS WOULD THE CLEANUP HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the surrounding communities because groundwater underlying the site is not used for potable water. Additionally, residential use of the DP011 is not occurring nor is it expected in the near future. As long as CCAFS remains an active gateway for the aerospace industry, DP011 is expected to continue operating in an industrial capacity.

Land use controls will be put in place to ensure that workers are adequately protected when engaging in activities that require contact with groundwater and that construction activities do not cause contaminant re-distribution.

WHY DOES THE 45th SW IRP TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because land use controls will prevent exposure to contaminants prior to the cleanup levels being achieved. Additionally, remediation of groundwater will be implemented in conjunction with SWMU No. 22, and will mitigate long term groundwater concerns. The

proposed remedy meets the four general standards for corrective measures.

NEXT STEPS

The 45th SW IRP team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy into the CCAFS HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then the land use controls will be initiated and a LUCIP will be developed and incorporated into the MOA.



LAND USE CONTROL IMPLEMENTATION PLAN

WASTE ETCHANT UNDERGROUND STORAGE TANK (DP011) SOLID WASTE MANAGEMENT UNIT 28 (SWMU NO. 28) 45TH SPACE WING CAPE CANAVERAL AIR FORCE STATION BREVARD COUNTY, FLORIDA

Facility Description

DP011, Solid Waste Management Unit 28 (SWMU No. 28), is located on the west side of Building 1708 (Hangars R and D) in the west-central portion of Cape Canaveral Air Force Station (CCAFS). The site contained one 1500-gal steel underground storage tank (UST). The UST at DP011 was used to store waste etchant acids (chromic and sulfuric) from the Circuit Board Etchant Facility (Building 1708) from 1961 to 1973. The use of the tank was terminated in 1973 when a leak from the tank was discovered. Subsequently, the tank was put out of service and filled with crushed limestone. The UST and adjacent contaminated soils were removed in July of 1993. Prior to its removal, the tank was connected by piping to Hangar R&D, Facility 1708. It should be noted that groundwater contamination underlying DP011 is due to dissolved contaminants emanating from Hangar K (SWMU No. 22) in the industrial area.

Location

(Reference Site Map on last page of this document)

Site Plan Coordinate	Northing	Easting
North	1510341.68	790017.77
West	1510240.77	789945.98
South	1510199.61	790003.71
East	1510302.52	790075.50

Objective

Implementation of site-specific land use controls to protect against exposure to contaminated soil and shallow groundwater and to prevent consumption of the shallow groundwater. The objectives for DP011 will be achieved in conjunction with additional investigation and remediation of groundwater at Hangar K (SWMU No. 22). Groundwater land use controls at DP011 will remain in place, until the groundwater contamination is successfully remediated under Hangar K.

LUCIP
FACILITY 1708 (SWMU NO. 28)
CAPE CANAVERAL AIR FORCE STATION
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Land Use Control (LUC) Implemented:

Administrative:

- The property will be prohibited from residential or other non-industrial development without prior written notification to the Florida Department of Environmental Protection (FDEP) and the United States Environmental Protection Agency (USEPA) concerning the SWMU land use change. Dependent on site conditions and the nature and intensity of the proposed land use change, additional site investigations and assessments could be required for the United States Air Force (USAF). Based on these analyses, additional remedial measures may be required prior to land use change.
- Perform and document baseline LUC audit upon finalization of the Statement of Basis.
- Perform and document quarterly LUC compliance inspections in accordance with 45th SW LUC Operations Manual.
- Perform, document, and report an annual audit on LUC implementation, maintenance, and compliance in accordance with the 45th SW LUC Operations Manual and the current CCAFS Corrective Action Management Plan (CAMP).
- The property Land Use Control Implementation Plan (LUCIP) shall remain in effect until:
 - a) Changes to applicable Federal and State risk-based clean-up standards occur which indicate site contaminants no longer pose potential residential risk; or
 - b) Reduction in site contaminant concentrations to below Federal and State residential risk-based clean-up standards occurs.
- In the event of property realignment, transfer, or re-use for non-industrial or non-commercial purposes, assessment and remediation may be necessary to ensure that impacts to ecological receptors are not increased or to mitigate potential ecological impacts where residual contamination exists.

Soil:

- Soils will not be disturbed or moved during property development, maintenance or construction, without:
 - a) USAF review, coordination, and approval of the proposed construction/development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
 - b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to off-site disposal; and
 - c) Use of proper personal protection equipment by site workers, as determined by the project proponent's occupational health and safety advisor.

LUCIP
FACILITY 1708 (SWMU NO. 28)
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- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS Hazardous and Solid Waste Amendments (HSWA) Permit.
- The site's asphalt cover shall be maintained as established in the baseline LUC audit.

Groundwater:

- The consumptive use of the site's surficial aquifer groundwater will be prohibited.
- Incidental consumption and dermal exposure to groundwater from the surficial aquifer will be prevented. This will be addressed by the project proponent's health and safety advisor.
- Groundwater will not be contacted, pumped, or discharged during property development, maintenance, or construction, without:
 - a) USAF review, coordination, and approval of the proposed construction/development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
 - b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media (groundwater) does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to any pumping or discharge of groundwater; and
 - c) Use of proper personal protection equipment by site workers, as determined by the project proponent's occupational health and safety advisor.
- The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS HSWA permit.

Statement of Basis:

The Statement of Basis (SB) is currently being reviewed. It is anticipated that the SB will be accepted/incorporated into the HSWA Permit, scheduled for issuance early in 2002.

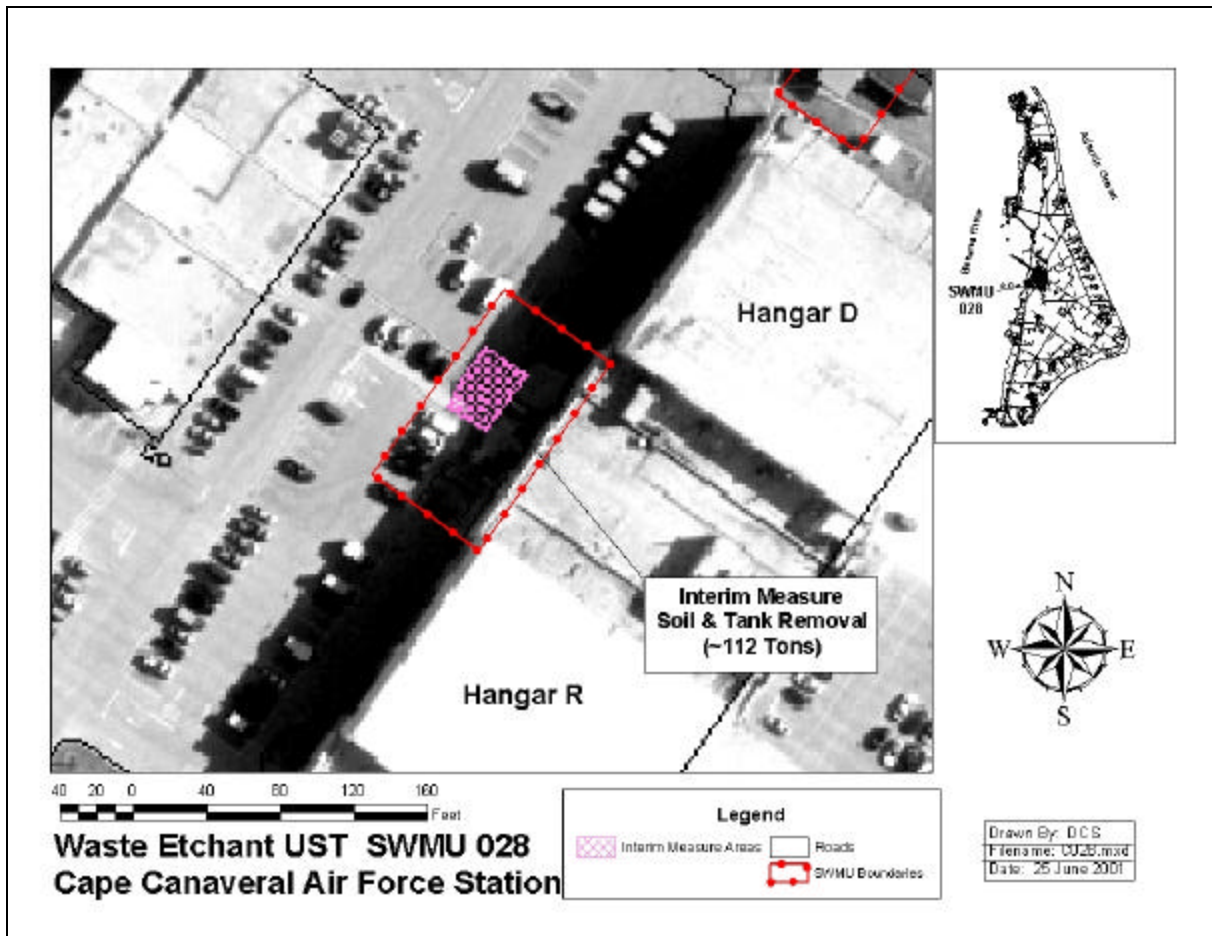
Additional Information:

Pertinent Document Reference:

Remedial Investigation/Feasibility Study, CCDS-6 (DP011), SWMU No. 28, O'Brien & Gere Engineers, Inc., March 1997.

LUCIP
FACILITY 1708 (SWMU NO. 28)
CAPE CANAVERAL AIR FORCE STATION
OCT 2001

Waste Etchant Underground Storage Tank, Facility 1708 (DP011) – Site Map



Please contact the 45 SW Installation Restoration Program Office to obtain additional information, including: the 45 SW Land Use Controls Operation Plan; the CCAFS HSWA Permit; a complete record of corrective actions at DP011; or other related documents, guidance, and regulations. The IRP office can be reached by phone at (321) 853-0965. Information can also be obtained via the IRP website at http://www.mission-support.org/45SW_IRP_EA